

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)	
)	NPRM 05-235
Amendment of Part 97 of the Commission's)	
Rules To Implement WRC-03 Regulations)	
Applicable to Requirements for Operator)	
Licenses in the Amateur Radio Service)	

Via the ECFS
Comments of The Society for the Preservation of Amateur Radio on NPRM 05-235

I. Introduction

1. The Society for the Preservation of Amateur Radio (SPAR) is a non-partisan group of concerned amateur radio operators working together to ensure the vitality of the Amateur Radio Service as defined in the US Legal Code 47 CFR Part 97, especially the purposes embodied in 97.1. It is our belief that the technical nature of the Amateur Radio Service is clearly acknowledged in the US by the FCC, particularly in Part 97.1, items (b), (c) and (d), which comprise 3 of the 5 reasons for the establishment of the Service. Similarly, we believe the International Telecommunications Union has underscored the necessity to maintain at least minimal standards of technical and operational skill within the amateur community in ITU Article 25.6, which says:

Administrations shall verify the operational and technical qualifications of any person wishing to operate an amateur station. Guidance for standards of competence may be found in the most recent version of Recommendation ITU-R M.1544.

2. We acknowledge the proud history of technical and non-technical contributions that amateur radio operators have made to radio communications technology and strive to ensure the Amateur Radio Service preserves traditional operating modes and remains able to continue to meet the technical challenges of the future.

3. We believe failure to require adequate entry-level skills will lead to chaos on the amateur bands, which are an internationally shared resource, and that inadequate enforcement of the regulations governing amateur radio will render the service useless and drive away those persons who could most contribute to the "advancement of the radio art."

4. We believe it essential for the survival of the Amateur Radio Service that continuous advancement in "skills in both the communications and technical phase of the [radio] art" be encouraged.

5. We believe the Amateur Radio Service should be open to all interested persons. Due to the inherently technical nature of amateur radio communications, it is important to ensure that amateur radio operators possess at least minimum skills and that the regulations concerning the Amateur Radio Service must encourage the further development of "trained operators, technicians, and electronics experts."

6. We further believe that, due to the inherent nature of amateur radio, technical skills contribute directly to the "value of the amateur service to the public" and the "amateur's unique ability to enhance international goodwill."

II. Summary

7. SPAR believes in both the advancement of the radio art and the preservation of traditional modes of operation. One should and must not be exclusive of the other. The action suggested in the NPRM (05-235) issued by the Commission is yet another step on the path to mediocrity by failing to recognize the existing contribution made by the operators of telegraphy to the evolving Amateur Service. It serves as an encouragement to those who desire to see the demise of CW as a mode and who also covet for voice or digital use the band plan frequencies reserved for CW use.

8. The Commission received a wide variety of petitions from groups and individuals motivated by perceived shortfalls in the FCC Regulations. It is unreliable to use such petitions to try to draw conclusions about the overall level of discontent with the Rules. This is because the system to request rulemaking is not triggered by the possible majority of people satisfied with the Rules as they stand, including the preferences "most amateurs" may have about maintaining a telegraphy requirement.

9. We believe that although the telegraphy test might have been viewed as an impediment to new applicants, there is enough middle ground available to craft a solution more agreeable to all parties. We also believe that additional information is available that show some conclusions reached in 05-235 were based on incomplete or aged information.

10. In consideration of the following discussion, SPAR recommends the Commission retain current CW testing for the Amateur Extra Class license. It is our belief the retention of Morse testing for the Amateur Extra license will not unduly burden potential amateur radio licensees, nor encumber those seeking access to the amateur HF bands. It will, however, serve to denote the higher standard met by holders of the highest license class and ensure Amateur Extra Class licensees have the skills necessary to communicate with amateurs of those countries whose authorities mandate Morse testing, thereby enhancing international goodwill.

III. Discussion

11. In 1998 the Commission decided to reduce CW testing to 5 WPM for the General and Amateur Extra class licenses, citing that they could not drop the CW test totally due to the ITU requirement to ensure CW capability for operation on frequencies below 30 Mhz. As a result of the ITU meeting in 2003, that specific requirement was dropped from the ITU requirements for amateur radio licensees. As a result it seems that many petitioners and commenters have jumped to the conclusion that the ITU mandates that CW testing be dropped. Of course that is not the case; the decision is simply now left to the discretion of individual governments to decide whether some form of CW testing should or should not be kept. It is of interest to note, however, that in RO 98-143, the ITU requirement was not the only reason the FCC kept testing.

12. In the Report and Order discussion for 98-143, the Commission stated *"The other principles that we consider relevant to examination requirements are that those requirements pertain to the privileges the operator license authorizes and that they constitute the minimum requirements necessary to demonstrate that the control operator of a station can ensure the proper operation of that station."* This clearly shows the Commission's attitude that testing should be commensurate and applicable to the privileges gained in advancing to higher license classes. While an argument could be made that since significant band segments allowing CW transmissions are gained by advancing from Technician to General class under the

current band allocations, there is little question that by advancing from General or the grandfathered Advanced class to Amateur Extra, the most significant additional bandwidth privileges are allocated to CW spectrum. Thus, to be consistent with its prior ruling, the Commission should at least maintain a minimal CW testing requirement for Amateur Extra class licensees.

13. In the same Report and Order discussion, the FCC stated *"In that we have decided not to retain the higher telegraphy speeds requirements, no person now will be required by our Rules to demonstrate telegraphy proficiency at higher telegraphy speeds. In this regard, we agree that by reducing the telegraphy requirement to a single 5 wpm telegraphy examination, the need to grant credit based on a Physician's Certification of Disability would be eliminated."* In other proceedings, the Commission also indicated that they considered that a 5 WPM CW testing requirement did not prohibit prospective amateurs from obtaining access to the HF bands.

14. In the current Notice of Proposed Rulemaking 05-235, the Commission states *"We believe that this proposal, if adopted, would (1) encourage individuals who are interested in communications technology, or who are able to contribute to the advancement of the radio art, to become amateur radio operators; (2) eliminate a requirement that we believe is now unnecessary and that may discourage amateur service licensees from advancing their skills in the communications and technical phases of amateur radio; and (3) promote more efficient use of the radio spectrum currently allocated to the amateur radio service."*

15. In view of the Commission's prior statements, it would appear that the 5 WPM CW test should not have discouraged interested persons from obtaining an amateur license. Additionally it is difficult to understand how removing a testing requirement involving a skill, i.e. the ability to use CW, encourages advancement in skills. Furthermore, since CW is known to be one of the most efficient means of communication in terms of equipment complexity, bandwidth and power requirements, and international communications, removing the CW testing requirement does nothing to encourage the more efficient use of spectrum. Instead it has quite the opposite effect by encouraging wider bandwidth modes requiring more complex equipment and power.

16. SPAR also requests that the Commission consider the following items.

Actions of Other Countries

Introduction

17. There does not appear to be an international mandate for the complete removal of CW testing in the US.

Discussion

18. With the small number of countries that have dropped the Morse code testing requirement one has to wonder why should the United States do the same? There are countries (including both Russia and Japan) that have decided to still require CW testing to obtain an Amateur Radio operators license. They believe in having a well trained pool of operators that will be able to handle any form of communications should the need arise.

19. Although some would say that with the removal of CW testing other countries have not experienced any problems with their bandplans, and there has been no problem with operators causing interference. They fail to see that these countries still need to keep in mind the bandplans of other countries, the United States being one of them.

20. The United States has more licensed operators than any other country. Our numbers influence Amateur operations worldwide, and our Rules and practices carry exceptional weight to help maintain order on the bands. The U.S. will continue to enjoy this role by maintaining quality licensing standards, including protecting the merits we describe with telegraphy testing for our premium class of license, the Extra. We can hope other countries will follow our example, but we can be satisfied regardless of their decision that we expect our most qualified licensees to be capable of communicating with this popular mode.

21. Based upon publicly available information about 12% of the countries in the ITU have dropped CW testing to date. The total number of amateur radio stations in the world, as of 2000 is 2,789,720 and the total number of amateur stations in countries that have dropped CW testing is estimated to be 331,152 or approximately 11.87%. Perhaps of greater interest is the fact that Japan, the second most populous country in terms of amateur licensees, has decided to continue requiring CW testing at some level. In addition, Canada, our neighbor, has also announced plans to continue CW testing much as proposed in the Kholer-Rightsell petition rejected by the Commission.

Change in the nature of Amateur ECOMM to more hobby use

22. SPAR wishes to point out that the role of amateur radio in providing emergency communications is specifically mentioned in 47 CFR Part 97.1 and that while no individual amateur is required to provide emergency communications, there does indeed exist a mandate in the Commission's own rules to provide rules for the "[r]ecognition and enhancement of the value of the amateur service to the public as a voluntary noncommercial communication service, particularly with respect to providing emergency communications." Thus it appears that by not providing rules specifically "enhancing" the amateur radio service's ability to provide emergency communications, the Commission would be abandoning its own public mandate and at least part of the reason for having rules creating an amateur radio service.

23. In the current NPRM 05-235 the Commission has stated that "... we note that the Commission ... concluded that most emergency communication today is performed using voice, data, or video modes, and that most amateur radio operators who choose to provide emergency communication do so using voice or digital modes of communication, because information can be exchanged much faster using modes of communication other than telegraphy" while also noting that amateur radio at present plays a diminished role in providing emergency communications. SPAR wishes to point out, as illustrated by two recent examples, that it is not always true that more information can be communicated more efficiently using modes other than CW. In fact for first responders, the major initial goal may well be to communicate by any means possible. Only when some order and other services are restored, is the data communications rate of major importance.

24. The Commission will recall that in December 2004 a tsunami caused major damage and loss of life in large areas of the Pacific and Indian Oceans. Subsequent reports of communications were widely publicized in both the amateur and popular press. The so-called "first responders" were a group of amateurs operating in the Andaman Islands at the time the disaster occurred. Reports indicate that these amateurs immediately switched to emergency operating mode and assisted various governments in coordinating emergency communications operations. Reports also indicate that at times the voice and digital signals were weak and unreliable, but that communications was maintained by switching to the use of CW and PSK31. Press reports specifically mention problems with batteries running down and no generators being available to recharge them - which is specifically when the most power-efficient mode of CW is MOST important. Those who mention PSK31 typically forget to mention that hooking a laptop to a battery in addition to the amateur rig typically doubles the amp-hour load on the battery. It is important that the US be capable of providing emergency communications to areas where CW may be the mode of choice. To leave this to whim, or chance, or "to the other guy" is abandoning our charge to foster international goodwill via the rules and regulations.

25. As an example much closer to home, the recent disaster associated with hurricane Katrina in New Orleans and along the central Gulf Coast also brought normal communications to a halt. It was widely reported in the news media that amateur radio operators at times provided the only communications into the disaster areas with reports of rescues being coordinated via amateur radio. Reports in the amateur community indicated that in various incidents, HF voice communications were difficult due to propagation problems, however using CW, the information was accurately communicated. In addition, some amateur stations in the affected areas were without power and with compromised antennas due to storm damage, but could operate at low power with marginal antennas using CW.

Popularity and Use of CW

Introduction

26. It is of importance to establish how much CW is used in amateur communications in order to place following discussions in perspective. Although there has been a great amount of verbiage showing that CW as an operating mode is dying, SPAR has been unable to find data actually confirming such conjectures. Instead, we find that CW is indeed used on the amateur bands and its use does not appear to be significantly declining.

Discussion

27. All reasonable data have shown that CW is the second most popular mode in use in amateur radio. A survey of the so-called "DX Cluster Spots" based on data for the years 1997 through 2004 show that CW accounts for over 40% of the DX activity, compared to about 50% for SSB, with the remaining activity being the various digital modes. In fact a breakdown by band shows that CW is more popular than SSB for DX on the 80/75 meter band, as well as the 12 and 17 meter bands. In fact only on 10 and 20 meters is SSB operation for DX contacts significantly more popular than CW. Although more difficult to gauge due to varying amateur band allocations worldwide, it appears that CW is also the most popular DX mode on 40 meters and, of course, on 30 meters where SSB operation is prohibited.

28. Of course DXing is only one of many amateur operating activities. Perhaps more popular on a routine basis is just chatting, or "rag chewing" in amateur jargon. SPAR has offered the Rag Chewers' Club Award since 2004 and has kept records of the applicants. The records are available on line at <http://www.spar-hams.org>. Of the 280 certificates issued as of this writing, 86 (30.7%) report "rag chewing" for more than 30 minutes using CW. This percentage includes all modes, bands and license classes and is not limited to HF operation.

29. In addition, the ARRL conducted 2 informal surveys, both of which indicated that only about 30% of the respondents did not use CW. In summary, all available data indicates that CW is more popular in actual usage than any other mode except for SSB and possibly FM on the VHF/UHF frequencies.

30. In terms of operating activities, it is interesting to review the contest activity of recent years. Instead of declining as suggested by no-code proponents, the popularity of the ARRL annual Straight Key Night has seen increasing activity during each of the years 2003, 2004 and 2005.

31. Additional results for contest operations are available on the ARRL web site at <http://www.arrl.org> and are also published in QST Magazine. The ARRL International DX Contest has both CW and SSB categories and in every year from 2002 through 2005, the CW category draws more entries with the 2005 contest drawing almost 25% more CW entries than SSB (2570 CW and 2057 SSB). Meanwhile the popular US-only November Sweepstakes also has both CW and SSB categories. While participation in both has dropped slightly in recent years the number of CW entries has remained at about 78% of the SSB entries with 1230 CW entries and 1558 SSB entries in 2004. In addition the ARRL holds the annual IARU HF Championship contest which has categories for CW, SSB as well as mixed mode for those who use both modes. All categories have shown increasing numbers in the past few years with 770 CW entries, 577 SSB entries and 593 Mixed mode entries in 2004. Thus those who operated CW during the contest accounted for 70% of the entries and those who operated only CW formed the largest single category with about 40% of the entries.

32. In reviewing the data presented herein it appears premature to claim that CW is a dying mode, since the statistics of operating usage show that CW usage has not significantly declined in the past few years, informal polls indicate that only around 30% of active amateurs do not use CW at all, and even for long conversations around 30% use CW as their mode of choice. Note that the later two categories include amateurs holding a license not tested on CW, which seems to indicate that the active no-code licensees are likely in the minority and most active amateurs do indeed use CW.

33. There have also been reports and statements that the military no longer uses Morse code and has no need for people who know it, the exception being for a few people in Special Forces. To illustrate the spread of misinformation, we note the following information listed as Military Occupational Specialties.

34. *Field 98 -- Communications Intelligence* (cf. <http://usmilitary.about.com/library/milinfo/arjobs/bl98h.htm>)

MOS 98H Communications locator/interceptor (requires Top Secret clearance)

"Major duties. The communications locator/interceptor performs and supervises detection, acquisition, identification, exploitation and location of foreign communications employing International Morse Code (IMC) and radio-printer (non-Morse) using signals intelligence/ electronic warfare (SIGINT/EW) collection and location equipment and operates ground surveillance systems engaged in intelligence and information gathering at all echelons. Performs collection management."

35. Army Warrant Officer Jobs (cf. <http://usmilitary.about.com/library/milinfo/arwarrant/bl352h.htm>)

MOS 352H - Morse Intercept Technician

"Duties: Manages the personnel and technical assets of INSCOM intercept/EW activities. Coordinates, plans, and supervises personnel engaged in intercept activity. Knows analytical techniques and has training and experience in COMINT and EW. Conducts training of and employment of Morse intercept equipment and personnel. Establishes work schedules and evaluates training and performance of personnel. Conducts a continual training program to ensure Morse personnel are adept at their MOS. Advises the commander and staff officers on employment and deployment of Morse intercept operations. Conducts studies, analysis, and evaluation of collection evaluation statistics and is prepared to present results to commander. Must know antenna theory and wave propagation."

36. From the actual Army enlistment site (<http://www.goarmy.com/JobDetail.do?id=96>):

"The nation's defense depends on information from foreign language newspapers, magazines, radio broadcasts and other sources. Therefore, it's very important that some members of the Army be able to read and understand the many languages of the world."

The Communications Locator/Interceptor is primarily responsible for performing and supervising the detection, acquisition, location and identification of foreign communications using International Morse Code (IMC) and radio-printer (non-Morse), as well as signals intelligence/electronic warfare (SIGINT/EW) collection and location equipment. Some of your duties as a Communications Locator/Interceptor may include: ..." (see website above for more details)

37. The U. S. Army also requires knowledge of Morse Code in the following 2 MOS's, both of which also require Top Secret Security Clearance. It is of interest that the Army is presently offering enlistment and re-enlistment bonuses for all these Morse MOS's which means that people who qualify are in short supply. The Army has about 130 MOS's most do not offer bonuses.

38. From <http://goarmy.com/JobDetail.do?id=174>

Signals Intelligence Analyst (98C)

*"As a Signals Intelligence Analyst, you may be involved in:
Recording radio signals coming in from foreign forces
Studying radio signals to understand the tactics used by foreign military forces
Locating the sources of foreign radio signals
Translating Morse code
Keeping logs of signals interceptions "*

39. From <http://goarmy.com/JobDetail.do?id=30>

Special Forces Communications Sergeant (18E)

"Special Forces Soldiers in the Army will conduct offensive raids, demolitions, intelligence, search and rescue and other missions from air, land or sea. Special Forces Communications Sergeants can operate every kind of communications gear, from encrypted satellite communications systems to old-style high-frequency (HF) Morse key systems. They also have serious computer/networking skills."

40. Meanwhile in the U. S. Navy, the new rating for Radioman is Information Systems Technician. (See <http://www.chinfo.navy.mil/navpalib/ratings/it.html>) As a part of the duties, the Navy still mentions telegraphy:

*"... operate radio-telephones and radio-teletypes, prepare messages for **international and domestic commercial telegraph, and send and receive messages via the Navy system**, including satellites and antennas."*

41. Similarly, the US Air Force lists the following Enlisted Career (Information is available on line at http://www.airforce.com/careers/job.php?catg_id=2&sub_catg_id=3&af_job_id=301)

Communication Signals Production Apprentice

"... Additionally, you will be trained to intercept and interpret International Morse Code signals. Your contributions will have a direct impact on protecting our nation from foreign threats."

42. As a result, it should be concluded that the use of Morse code and CW is not as dead as many people would think. The Commission's action in eliminating CW testing, even for the Amateur Extra class license, fails to take into account the activity on the current amateur HF bands, as well as the stated needs of the US military.

Telegraphy and FCC Licensing in the Amateur Service

Introduction

43. Hoping for acceptance that we have established the prominent place held by telegraphy operations in the Amateur Service, SPAR wishes to draw attention to how the Regulations have respected this presence and are warranted in continuing to do so.

Discussion

44. The Amateur Extra Class license represents our highest level of testing achievement. We feel the telegraphy test as it today is configured should remain part of the certification for the premium class of licensee in the Amateur Service.

45. The largest group of Petitions submitted to the FCC and later consolidated for the agency's response in NPRM 05-235 expressed a generalized feeling that the telegraphy licensing element should be discontinued to provide easier access to Amateur licensing. None of these requests specifically made a case that such testing should be eliminated for the Extra Class. Indeed, several Petitions in this proceeding have taken the same stance as ourselves, that the top grade of license should include a test for telegraphy proficiency.

46. We feel you can address the concerns of Petitioners based on their submitted basis while not going beyond their thrust to the detriment of other interests in the Amateur Service.

47. Maintaining the existing telegraphy test as part of a comprehensive examination of candidates for the Extra Class license supports the FCC's mandate that its Rules must "provide for advancing skills in both the communication and technical phases of the radio art." (47 C.F.R. § 97.1) The Commission must also respond to concerns that it expand the "existing reservoir of trained operators," some of whom are drawn to the Amateur Service because they can derive satisfaction from having passed a challenging test involving specialized learning.

48. Neither the public interest nor the FCC's goals would be served by denying candidates for Extra the traditional opportunity to fully demonstrate their communications skills among modes that enjoy widespread popularity. As described earlier, telegraphy is one such mode, and holders of the Extra Class license are likely to encounter activities using this mode on frequencies they have earned the privilege to use.

Operators in this class have historically had the ability and skill to detect and communicate in this mode, while not being unreasonably hindered in their pursuit of technological advancement.

49. We have shown how the merits of telegraphy draw enthusiasts to this mode beyond the federal mandate contained in required testing. As a result of telegraphy's prominent place among the modes and activities we enjoy, it serves a valid regulatory purpose to retain telegraphy testing as part of demonstrating the well-rounded ability required of Extra Class licensees. This is regardless of whether such activity is ultimately part of a licensee's primary area of operating interest.

50. Recruitment efforts in the Amateur Service have never featured the Extra Class license as an initial point of entry, although candidates from outside the service may today join at the highest level possible. In practice, the vast majority come in at a lower level and strive toward this premium license.

51. In years past, immediate access to the Extra was prohibited by law, which for many operators added to the allure of the license. The license was not available until a lower class licensee had learned communications skills for a federally mandated period of time. Many licensees today still value such seasoning, a vestige of which is contained in the learning required to pass a telegraphy test. It is an important retention tool serving the public interest that our premium license offer value and provide a sense of accomplishment distinct from that available from tests associated with lower license classes.

52. For those who do not wish to participate in telegraphy, have learning difficulties, or otherwise do not envision having interest in this popular mode of operating, other classes of license would be available without a premium telegraphy test under the basic thrust of 05-235. Therefore we disagree with Petitioners who believe the telegraphy test precludes candidates from obtaining an Amateur license with opportunities to communicate on frequencies below 30 MHz.

The Relevance of CW in Technical Advances

Introduction

53. Those who say that CW has hampered technical advances in amateur radio certainly do not seem to be aware of the recent history of amateur communications.

Discussion

54. It is interesting to trace the history of amateur digital communications. Up until the mid-1970's, the main amateur digital operating mode was RTTY using some form of Audio Frequency Shift Keying and occupying a nominal bandwidth of around 200 Hz. At that time the possibility of improved signal-to-noise ratio communications and extremely low powered transmissions was foreseen by a group of experimenters whose efforts led directly to the mode called "Coherent CW." Coherent CW was based on standard CW using Morse code at a standard speed of 12 words per minute, but with quite accurate timing, phasing and frequency calibration implemented in simple digital circuitry at least a decade before the personal computer became widely available. Bandwidths as narrow as 9 Hz were reportedly used and improvements in signal-to-noise ratio in excess of 20 dB were documented. According to the developers, CW was chosen as the mode to build upon due to the ease of designing and constructing equipment and the inherent simplicity and reliability of the mode. (cf. C. Petit, W7GHM, QST Sept. 1975) Based on the initial success of Coherent CW, a direct lineage to the current popular amateur digital modes using Binary Phase Shift Keying can be traced, including one of the most popular and spectrum efficient digital modes, PSK31. (cf. V. Black, AB5SO article in QRPp available at <http://www.njqr.org/ccw/BPSK-ab6so.pdf>). This is but one example that an understanding of and the ability to use basic technology by interested amateur radio experimenters has indeed led to innovative developments. It should also be pointed out that work on Coherent CW did indeed foster international goodwill, with major developments in Coherent CW and the following digital modes being contributed by amateurs in the U. S., U. K., Germany, Russia and other countries.

55. In addition, one of the recent breakthroughs in VLF communication involved the reception of transatlantic radio signals on the 136 kHz band. Although the band is not a normal amateur allocation in the US, experimentation using VLF frequencies is on-going within the worldwide amateur community where home built equipment is the norm. Due to the extreme challenges of operating on the 136 kHz band,

including high ambient noise levels, absence of large scale ionospheric reflections and designing antennas functional at frequencies with wavelengths of over 2 km, the mode of choice for initial experimentation has been and still is slow speed CW. (cf. "The Transatlantic on 2200 meters", QST, July 2005)

56. Even more recently, AMSAT Argentina has announced the launch on October 16, 2005, depending on weather, of an 8 meter diameter balloon to explore and prepare for future efforts toward an Argentinian satellite launch. They request reception reports and indicate that telemetry including temperature, call signs and explanatory text will be sent every 30 seconds using 10 WPM Morse code with FM on the 2 meter band. It appears that AMSAT Argentina does not consider Morse code to be a detriment to technical advances involving satellite communications.

57. Other amateur accomplishments, including moon bounce, meteor scatter, super high frequency communications distance records and more were all accomplished initially using CW as the transmission mode and are not documented here. Therefore the historical record seems to indicate that rather than discourage the advancement of technical accomplishments, CW has been the mode of choice, since it allows the use of simple equipment and allows experimenters to concentrate on other more difficult factors. The Commission should continue to encourage the advancement of difficult communication frontiers by their recognition of the importance of CW and retention of CW testing at least for the Amateur Extra license.

Contributing to the Radio Art

Introduction

58. In NPRM 05-235 the Commission states, "We believe that this proposal, if adopted, would: (1) encourage individuals who are interested in communications technology, or who are able to contribute to the advancement of the *radio art*, to become amateur radio operators...". We respectfully suggest that the definition of "radio art" has slowly evolved in recent years into "radio science" in Commission rulings.

Discussion

59. Art is defined as: skill acquired by experience, study, or observation; an occupation requiring knowledge or skill or the conscious use of skill and creative imagination especially in the production of aesthetic objects.

60. Science is defined as: the state of knowing, knowledge as distinguished from ignorance or misunderstanding; a department of systematized knowledge as an object of study; or knowledge or a system of knowledge covering general truths or the operation of general laws especially as obtained and tested through scientific method. Technology is derived from the application of scientific principle to produce advances in hardware or know-how. The "radio science" would include applications of science and know-how to advance technology in Amateur Radio.

61. Clearly "art" is more subjective. Contributing to an "art" would require demonstration of skills required to advance the subjective nature of Amateur Radio. This would include history, tradition, popularity, etc. Telegraphy testing is assuredly a skill with which to demonstrate "study or observation" of the history of Amateur Radio. The "aesthetic object" produced is the proficient Amateur Operator, capable of contributing to the history and traditions of the service. Therefore, "the radio art" does not need to assume technology to exist. Amateurs who advance technology within the service are advancing the science of the service, not the art.

62. Telegraphy testing may not advance the science or technology of Amateur Radio, but certainly advances the "radio art" whereby an aesthetic operator is produced with appreciation for the traditions, history, and needs of the service.

Telegraphy Testing as an indicator of being a good operator and as a filter

Introduction

63. Perhaps the two most overused defenses of telegraphy testing have been that taking a telegraphy test somehow makes someone a good operator and filters out undesirable applicants. These arguments have been dismissed in kind by the Commission historically.

Discussion

64. In absolute terms, the Commission is correct that telegraphy testing alone can't make someone a good operator or filter out the undesirable element. We suggest, however, that both the Commission and the people using these arguments are missing important points.

65. In a survey conducted by a SPAR member, fifty (50) different amateurs from around the southeast were identified based on obvious bad operating habits on local two meter repeaters. They were contacted and asked if they "planned to upgrade soon" (the question made the obvious assumption that they were Technician Class operators while avoiding putting the participant on the defensive. Follow-up questions were asked to ensure this assumption was correct). In 49 out of 50 of the cases of "bad operator" activity, the participant indicated that telegraphy testing had prevented them from upgrading. The 50th participant was discovered to be a General Class licensee who often bragged about never using telegraphy. Although limited in nature, this poll clearly shows that telegraphy testing, in this case, had successfully filtered out 49 out of 50 "bad" amateurs from getting on HF.

66. Telegraphy testing opponents point to bad operators on the air today who took the telegraphy test as proof the test is not a good filter, yet they offer no promise or assurance that the removal of testing will make this better or at the least not any worse. The limited survey shows that while telegraphy testing may not be a perfect filter for undesirables, it is still an effective one.

67. Likewise, code testing opponents argue that the test does not make a person a better operator. We disagree with this statement indirectly. SPAR feels that while the test itself may not make someone a better operator, the use of telegraphy regularly does make for a better operator.

68. Beginning in 2003, the same SPAR member conducted a poll lasting nearly 2 years. In the poll, 300 operators were contacted using SSB who were exhibiting either remarkably good operating practice, or remarkably bad practice. Results indicate the 85% of the good operators used telegraphy regularly, while 100% of the bad operators did not use telegraphy regularly. In fact, over 90% of the bad operators specifically said they passed the code test and have never used it on the air.

69. In 2004, 100 regular telegraphy users from across the country were contacted (selected on the basis of their good operating characteristics). They were asked, "If there would not have been a telegraphy testing requirement, would you have gone on to use CW regularly?" 80% of them said that they would not have gotten interested but for the test and the remaining 20 had become interested by virtue of being commercial or military operators.

70. The poll findings clearly show that using telegraphy makes amateurs better operators, and that the test may be largely responsible for applicants becoming regular users of telegraphy. The logical conclusion is that the test is responsible for the ultimate causation of good operating on the Amateur Radio bands. At the least, the findings of this survey (the only known study done on this subject) indicate that the removal of telegraphy testing may be premature until more exhaustive polling is done. Surely these polls expose ideas that go contrary to current Commission thinking. SPAR acknowledges that these polls are far from scientific and encourage others to make more scientific surveys.

Conclusions

71. The use of telegraphy remains the second most popular pursuit in the Amateur Service. The Regulations respect this presence and should continue to do so. The Amateur Extra Class license

represents the highest level of testing achievement, and the telegraphy test as it today is configured should remain part of testing to be certified as a premium class of licensee in the Amateur Service.

72. For those who do not wish to participate in telegraphy, have learning difficulties, or otherwise do not envision having interest in this popular mode of operating, other classes of license would be available without a premium telegraphy test under the basic thrust of 05-235.

73. Therefore as an organization, in consideration of the previous comments, SPAR requests that the Commission retain Element 1 CW testing at least for the Amateur Extra class license.

Electronically signed and respectfully submitted this 27th day of October, 2005.

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